

WHAT IS CLAIMED IS:

1 1. A method for storing data by positioning a write head over a  
2 moving storage medium and providing a write current to the write head, the method  
3 comprising:  
4 detecting a writing error;  
5 suspending the write current in response to the writing error while  
6 allowing the storage medium to continue moving;  
7 repositioning data that would have been stored during the suspending  
8 of the write current; and  
9 supplying write current to store the repositioned data on the storage  
10 medium.

1 2. The method of claim 1 wherein error correction information is  
2 encoded in the data on the storage medium and wherein the step of detecting a  
3 writing error comprises:  
4 comparing data written to the storage medium to data read from the  
5 storage medium to detect errors in the data; and  
6 wherein the steps of repositioning data and supplying write current  
7 to store the repositioned data are performed if errors in the data exceed a threshold  
8 based on capability of the encoded error correction information to recover the data  
9 that would have been stored.

1 3. The method of claim 1 wherein error detection and correction  
2 information is encoded in the data on the storage medium and wherein the step of  
3 detecting a writing error comprises:  
4 reading the error detection information to detect errors in the data;  
5 and  
6 wherein the steps of repositioning data and supplying write current  
7 to store the repositioned data are performed if errors in the data can not be corrected  
8 using the encoded error correction information.

SUBMIT  
"FOOTER" E224400T

100443-123101  
TEST E2400

1 4. The method of claim 1 wherein the step of detecting a writing  
2 error comprises:

3 indicating a writing error based on positioning of the write head  
4 relative to the storage medium.

1 5. The method of claim 4 wherein the step of detecting a writing  
2 error comprises:

3 indicating a writing error based solely on positioning of the write  
4 head relative to the storage medium.

1 6. The method of claim 1 wherein the storage medium includes write  
2 head positioning information and wherein the step of detecting a writing error  
3 comprises:

4 indicating a writing error based on the write head positioning  
5 information.

1 7. The method of claim 1 wherein the storage medium comprises a  
2 tape.

1 8. The method of claim 1 further comprising:  
2 measuring span of the writing error; and  
3 repositioning and writing the data only if the span of the writing error  
4 is less than a corresponding threshold.

1 9. The method of claim 1 further comprising:  
2 formatting data for writing by grouping data into sub-blocks, adding  
3 sub-block sequencing information, write pass information, and error detection  
4 information to each sub-block of the data.

1 10. The method of claim 1 further comprising distinguishing current  
2 data from previously written data stored on the storage medium.

1001-22-1001

1 11. A system for storing data on a moving storage medium, the  
2 system comprising:

3 a servo position control for positioning a read/write head relative to  
4 the storage medium and providing a tracking signal indicative of read/write head  
5 position relative to tracking information on the storage medium; and

6 a processor for grouping data to be stored on the storage medium,  
7 adding write pass information, and encoding error correction and detection  
8 information in the data, and selectively supplying a write signal to the read/write  
9 head to store the data on the storage medium wherein the processor suspends the  
10 write signal in response to detection of a writing error while allowing the storage  
11 medium to continue moving, selectively repositions data that would have been  
12 stored, and selectively supplies a write signal to store the repositioned data on the  
13 storage medium.

1 12. The system of claim 11 wherein the processor compares data  
2 written to the storage medium to data read from the storage medium to detect errors  
3 and selectively suspends the write signal if the errors exceed a corresponding  
4 threshold based on the error correction information.

1 13. The system of claim 11 wherein the processor selectively  
2 suspends the write signal based on positioning of the write head relative to the  
3 storage medium.

1 14. The system of claim 13 wherein the processor selectively  
2 suspends the write signal based solely on positioning of the write head relative to  
3 the storage medium.

1 15. The system of claim 13 wherein positioning of the write head  
2 relative to the storage medium is detected based on a comparison of data written to,  
3 and read from, the storage medium.

100443-123401

1           16. The system of claim 13 wherein positioning of the write head  
2 relative to the storage medium is detected based on write head tracking information  
3 stored on the storage medium.

1           17. The system of claim 11 wherein the storage medium comprises  
2 a magnetic tape having read/write head positioning information and a plurality of  
3 generally parallel data channels.

1           18. The system of claim 11 wherein the processor measures span of  
2 the writing error and repositions and writes the data only if the span of the writing  
3 error is less than a corresponding threshold.

1           19. The system of claim 11 wherein the processor measures span of  
2 the writing error and repositions and writes the data only if the span of the writing  
3 error is between first and second thresholds wherein the first threshold is based on  
4 the span and the error correction information.

1           20. The system of claim 19 wherein the second threshold is based  
2 on the span and capacity of the storage medium.

3           21. A computer readable storage medium having stored data  
4 representing instructions executable by a processor to control a data storage device  
5 that positions a write head over a moving storage medium and provides a write  
6 current to the write head, the computer readable storage medium comprising:  
7           instructions for detecting a writing error;  
8           instructions for suspending the write current in response to the  
9 writing error while allowing the moving storage medium to continue moving;  
10          instructions for repositioning data that would have been stored during  
11 the suspending of the write current; and  
12          instructions for supplying a write current to store the repositioned  
13 data on the moving storage medium.

100472301

1                   22. The computer readable storage medium of claim 21 wherein  
2 error correction information is encoded in the data on the moving storage medium  
3 and wherein the instructions for detecting a writing error comprise:

4                   instructions for comparing data written to the moving storage medium  
5 to data read from the moving storage medium to detect errors in the data; and  
6                   instructions for indicating a writing error if errors in the data exceed  
7 a corresponding threshold.

1                   23. The computer readable storage medium of claim 21 wherein  
2 error detection and correction information is encoded in the data on the moving  
3 storage medium and wherein the instructions for detecting a writing error comprise:

4                   instructions for reading the error detection information to detect  
5 errors in the data; and  
6                   instructions for indicating a writing error if errors in the data can not  
7 be corrected by the encoded error correction information.

1                   24. The computer readable storage medium of claim 21 wherein the  
2 instructions for detecting a writing error comprise:

3                   instructions for indicating a writing error based on positioning of the  
4 write head relative to the moving storage medium.

1                   25. The computer readable storage medium of claim 24 wherein the  
2 instructions for detecting a writing error comprise:

3                   instructions for indicating a writing error based solely on positioning  
4 of the write head relative to the storage medium.

1                   26. The computer readable storage medium of claim 21 wherein the  
2 moving storage medium includes write head positioning information and wherein  
3 the instructions for detecting a writing error comprise:

4                   instructions for indicating a writing error based on the write head  
5 positioning information.

1 27. The computer readable storage medium of claim 21 further  
2 comprising:  
3 instructions for measuring span of the writing error; and  
4 instructions for repositioning and writing the data if the span of the  
5 writing error exceeds a corresponding threshold.

1 28. The computer readable storage medium of claim 21 further  
2 comprising:  
3 instructions for formatting data for writing by grouping data into sub-  
4 blocks, adding sub-block sequencing information, write pass information, and error  
5 detection information to each sub-block of the data.

1 29. The computer readable storage medium of claim 21 further  
2 comprising instructions for distinguishing current data from previously written data  
3 stored on the moving storage medium.